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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/914,471	08/29/2001	Tomoo Yamamoto	29273/557	5455

7590 10/13/2004

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EXAMINER

RICKMAN, HOLLY C

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 10/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/914,471

Applicant(s)

YAMAMOTO ET AL.

Examiner

Holly Rickman

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 6,9 and 10 is/are allowed.
- 6) ☒ Claim(s) 1-5,7,8,11-18 and 21 is/are rejected.
- 7) ☒ Claim(s) 19 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. It is noted that an inadvertent error in entry of the amendment filed on 3/24/03 led to the significant administrative delay in processing of the present application. The Examiner earnestly apologizes for the inconvenience. Applicant is invited to contact the Examiner at the telephone number listed below to discuss any aspects of this case and expedite prosecution in any way possible.

Specification

2. The objection to the abstract of the disclosure is withdrawn in view of Applicant's amendments.

Claim Objections

3. The objection to claims 1, 11, and 18 is withdrawn.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. The rejection of claim 21 under 35 U.S.C. 112, second paragraph, is withdrawn in view of Applicant's amendment.

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6. Claims 1-5, 7-8, 13 and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 and all claims depending therefrom are rendered indefinite by the limitation, "Co alloy magnetic layer formed thereon directly or indirectly with a Cr underlayer interposed between them." It is not clear how a Co alloy magnetic layer can be formed "directly" on the orientation layer *and* has a Cr layer interposed there between. For purposes of examination, the claim has been interpreted to mean that a magnetic layer is disposed on an orientation layer with a Cr layer in between wherein additional unrecited layers may be present between the magnetic layer and the orientation layer.

Claims 2-3, 7-8, and 13 are rendered indefinite by the use of the term "type." It has been held that the addition of the word "type" to an otherwise definite expression renders it indefinite. See MPEP 2173.05(b)

Double Patenting

7. The provisional rejection of claim 1 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 3 of copending Application No. 09/862,452 is withdrawn in view of Applicant's submission of a Terminal Disclaimer.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

9. Claims 3, 8, and 11-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Lambeth et al. (US 6248416).

Lambeth et al. disclose a magnetic recording medium having a first underlayer formed from any one of several materials including a material having an fcc structure and a (110) crystalline orientation such as Ag or Cu, a L1₀ structure, a L1₂ structure, or a B2 structure such as AlNi₂Ti (see abstract; col. 8, lines 10-35; col. 13, lines 6-35; col. 28, lines 39-54). A Cr underlayer and a Co-based magnetic layer are disposed over the first underlayer.

10. Claims 16-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Ueno (US 6159625).

Ueno discloses a magnetic recording medium having a substrate, a B2 layer formed from a NiAlB alloy containing 0.5 at% B, a Cr alloy underlayer, and a Co based magnetic layer thereon (see Table 3, Sample No. 23 and Example 4).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lambeth et al. (US 6248416) in view of Ohkijima et al. (US 5736262).

Lambeth et al. disclose all of the limitations of the claims except for the presence of a CoCr intermediate layer having at least 25 at% Cr.

Ohkijima et al. teach the use of a CoCr intermediate layer between a Cr underlayer and a Co-based magnetic layer in a magnetic recording medium. The reference teaches that it is advantageous to use a CoCr alloy (preferably with 34-45 at. % Cr) because it improves the characteristics of the initial growth layer of the overlying Co magnetic layer (col. 3, lines 29-49).

Allowable Subject Matter

13. Claims 1-2, 4-5 and 21 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

14. Claims 6-7, 9-10, and 19-20 are allowable over the closest prior art to Ueno (US 6159625). Ueno teach a magnetic recording medium having a substrate, a NiAlZr layer, a Cr alloy underlayer and Co alloy magnetic layer (see Table 3 and Example 4). However, the reference fails to teach or suggest the specific amounts of the claimed elements. With respect to claims 19-20, the reference fails to teach or suggest a motivation to add an additional Cr underlayer or a CoCr intermediate layer in below the magnetic layer.

Response to Arguments

15. Applicant's arguments filed 3/24/03 have been fully considered but they are not persuasive.

With respect to the issue of interpretation of claims 4, 9, and 14, it is noted that claim 4 has now been rejected under 35 USC 112, second paragraph for the reasons set forth above. Claims 9 and 14 very clearly include the Cr or Cr alloy underlayer as noted by Applicant.

With respect to the art rejections, Applicant argues that Lambeth requires an Ag layer on a Si substrate and thus does not teach an orientation control layer disposed *directly* on a substrate. Applicant also argues that the orientation of the underlayers or seed layers taught by Lambeth et al. derive their orientation from the Si substrate rather than from their own orientation.

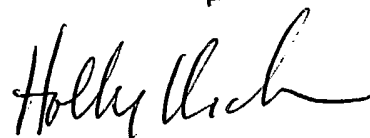
Regarding the first point, Lambeth teaches that Ag (fcc material with an (110) orientation) or a L1₀ material or a L1₂ material can be epitaxially grown on a Si substrate (col. 8, lines 10-21). Thus, these layers are directly deposited on the substrate as claimed. With respect to Applicant's position that the underlayers/seed layers taught by Lambeth et al. derive their orientation from the Si substrate, the limitation "orientation control" has been interpreted in light of the specification to mean that the layer controls the orientation of overlying layer(s). It is the Examiner's contention that the seedlayers and underlayers taught by Lambeth et al. perform this function.

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16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Rickman whose telephone number is (571) 272-1514. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (571) 272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Holly Rickman
Primary Examiner
Art Unit 1773

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September 28, 2004